

Washington State Truck Freight Performance Measure Research Interim Report

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**Washington State
Department of Transportation**



In 2007, the Washington State Legislature initiated one of the first state truck performance measure projects in the U.S.

- In the 2007 Transportation Budget, the Washington State Legislature appropriated \$320,000 in state transportation planning funds, assumed \$128,000 in matching program T federal funds through the Washington State Department of Transportation (WSDOT), and an additional \$192,000 in federal funds via the University of Washington TransNow Regional Center, to develop a freight database to help guide the state's freight investments and track project effectiveness.
- The Bill directed the project to track truck movements through geographic information system (GIS) technology, and assigned management of the research to WSDOT (Freight Systems Division).
- The Legislature reappropriated \$324,000 of the total \$428,000 authorized into the 2009 - 11 biennium. This action recognized the time needed to negotiate new contracts with multiple GPS service providers.

How does measuring truck freight performance benefit Washington State?

By accurately tracking truck trip travel times and network reliability, the Truck Freight Performance Measure project deliverables put Washington State at a great advantage for:

- I. Future federal freight funding requests. Congressman Oberstar's draft transportation bill requires performance measures, as does the emerging national consensus for re-authorization.
- II. Increasing public accountability to citizens. Tracking truck freight performance before and after projects are constructed explains the value of their investments.
- III. Making the most productive investments of state dollars. Quantifying delay at truck freight bottlenecks allows the state to identify key problems and prioritize project funding.

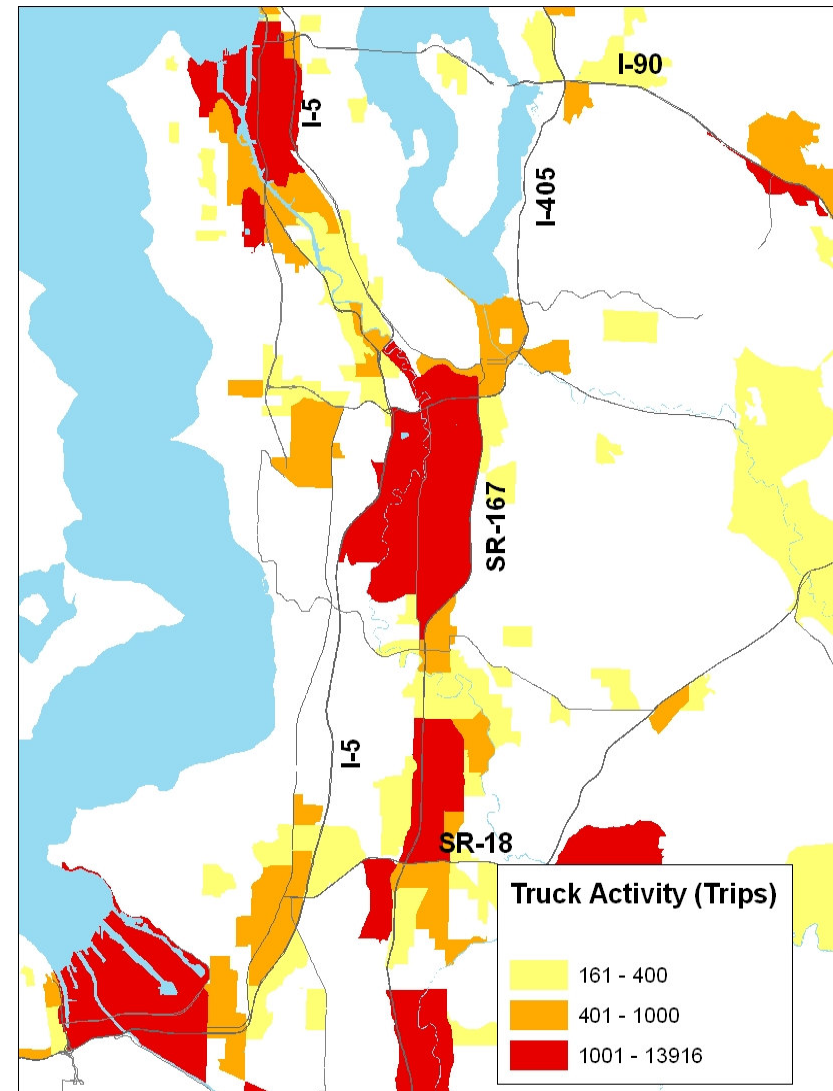
I. Future federal freight funding requests

The American Association of State Highway and Transportation Officials (AASHTO) and Federal Highway Administration (FHWA) Freight Performance Measure Task Force has developed three national freight measures for the re-authorization bill:

1. Travel time
2. Reliability
3. Access

Washington State's Truck Performance Measure research project accurately tracked truck travel times and analyzed reliability of the highway and local road network in Central Puget Sound in 2009.

The on-board-truck GPS location reads documented where many truck trips begin, where they go and how long it takes to get there.



II. Increasing public accountability to citizens

Case Study A: The impact of the I-90 Bridge construction project on truck speeds in 2009.

The I-90 floating bridge expansion joints had deteriorated, presenting a safety risk. To protect drivers, WSDOT replaced the aged and worn expansion joints on the westbound bridge and center roadway in 2009.

WSDOT replaced the expansion joints on the center roadway reversible lanes from May 4 to 18.

The new expansion joints support the heavy loads that regularly cross I-90, including truck freight and transit vehicles.

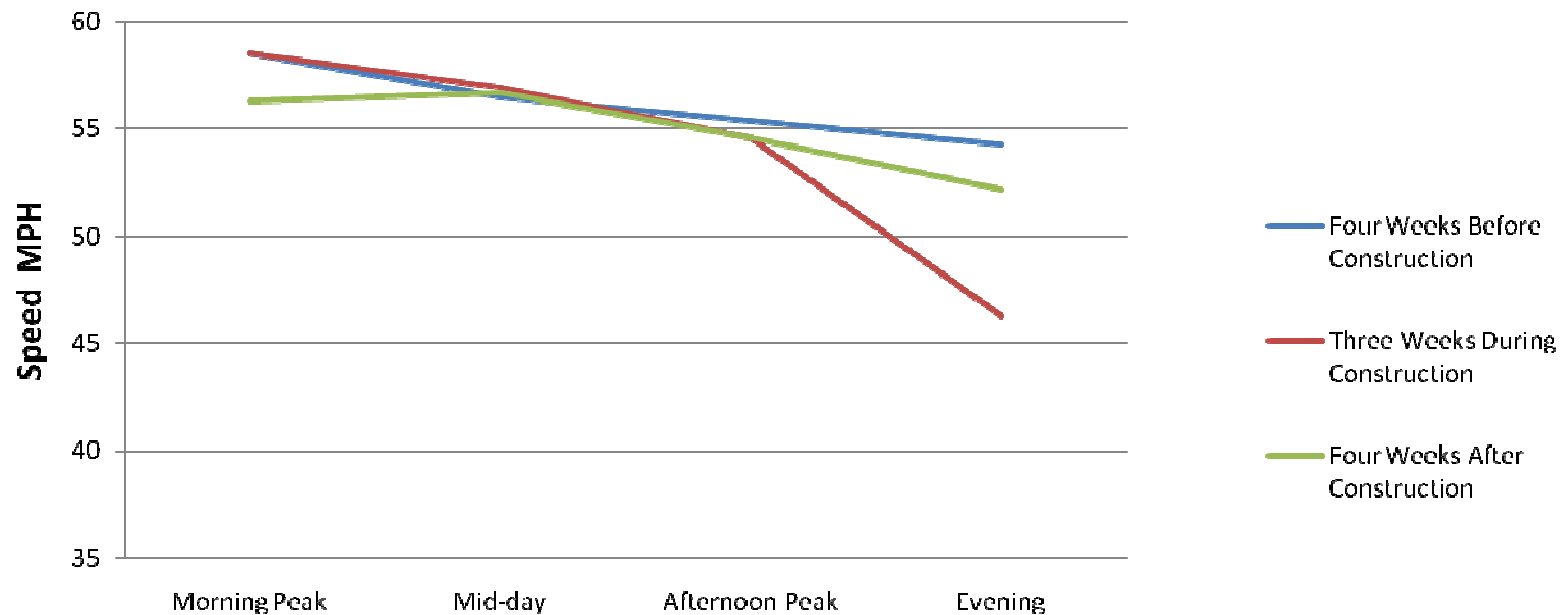
Total funding from all sources was \$8.5 million.



II. Increasing public accountability to citizens

Case Study A: How did eastbound truck speeds change before, during and after the I-90 Bridge construction project in May 2009?

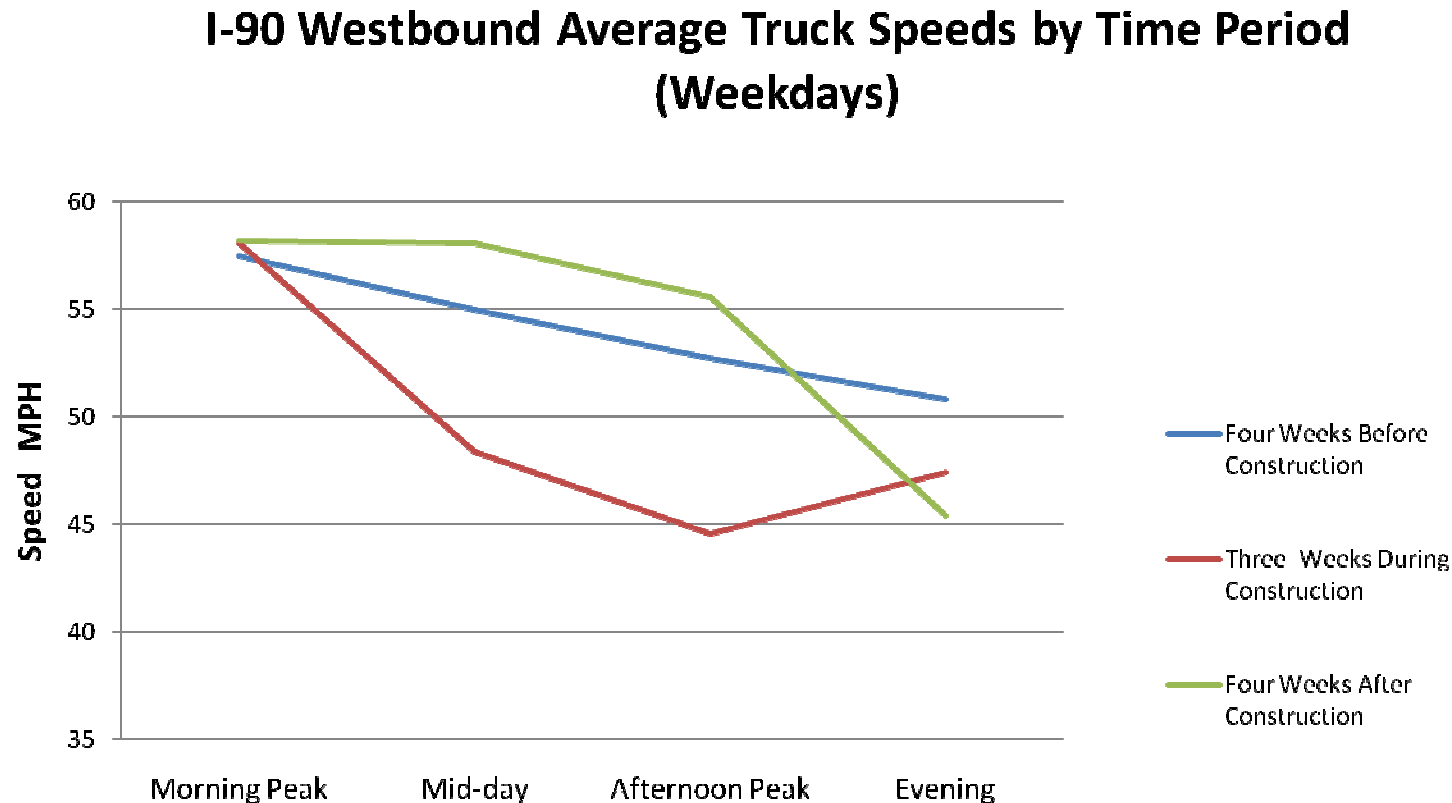
**I-90 Eastbound Average Truck Speeds by Time Period
(Weekdays)**



Eastbound truck speeds were eight mph slower in the evenings during the construction period than before.

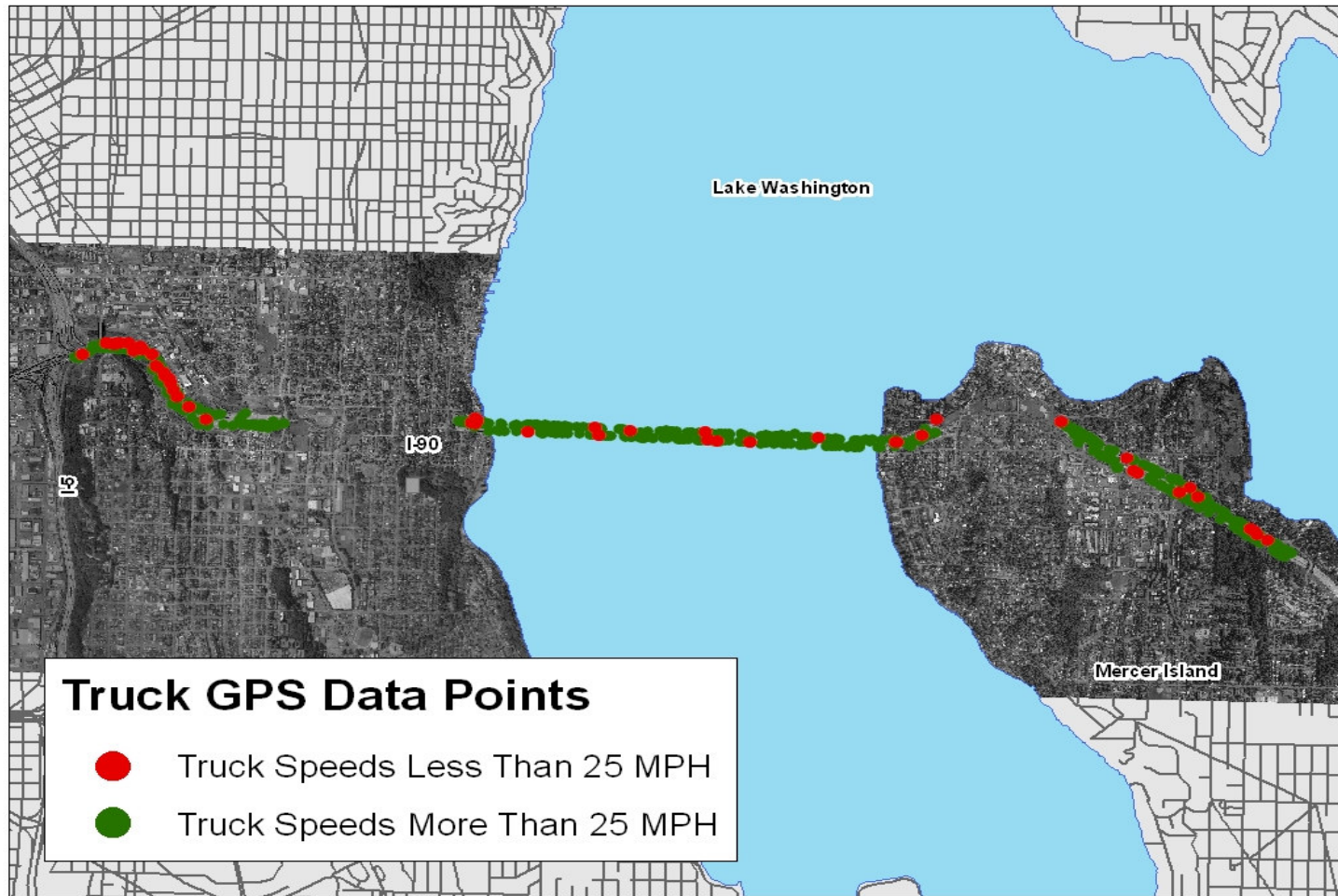
II. Case Study A: I-90 Bridge project

How did westbound truck speeds change?



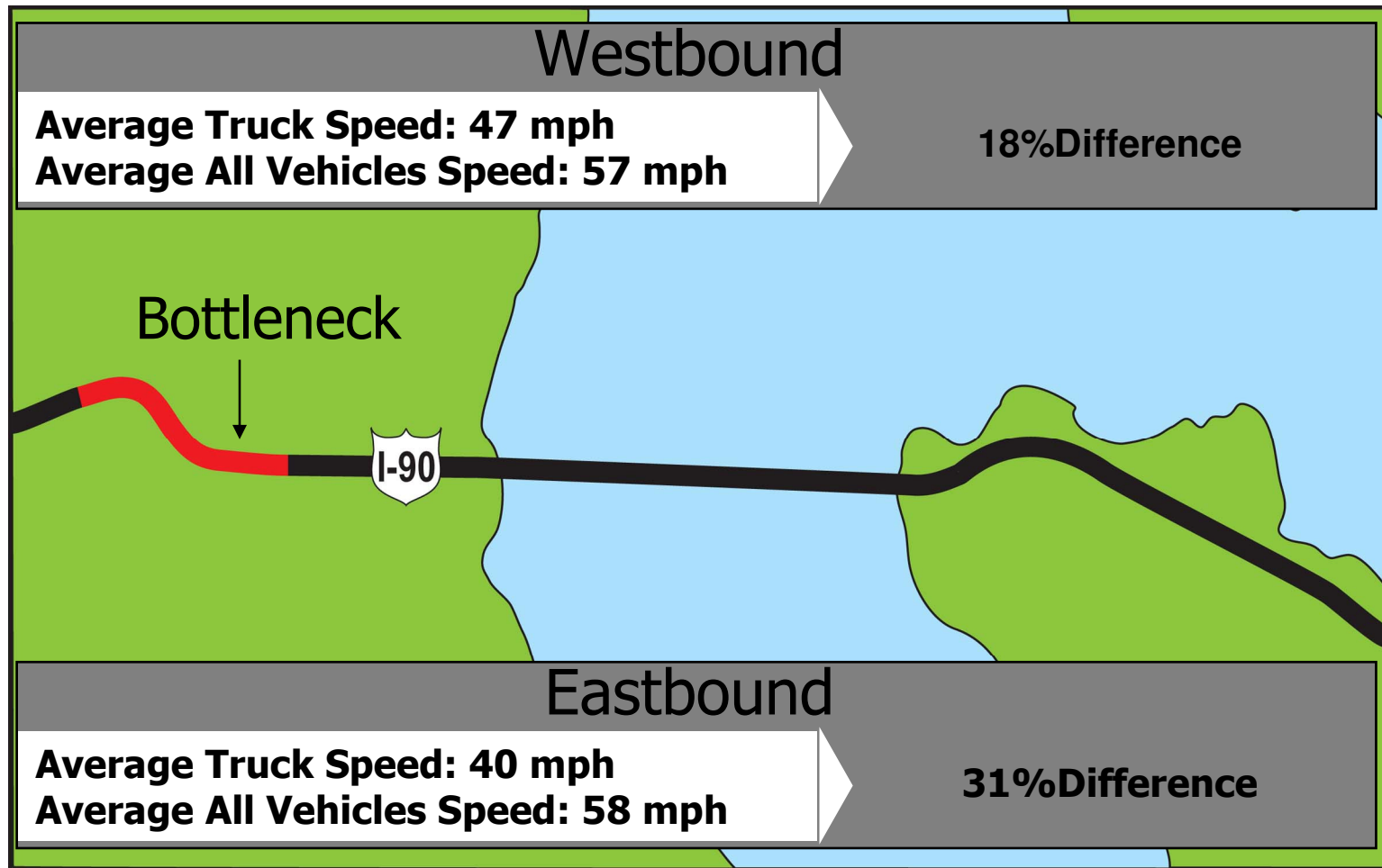
Westbound truck speeds improved by three mph in the mid-day and afternoon peak periods after the I-90 project was completed.

III. Making the most productive investments of public dollars



Case Study B: The Truck Performance Project documented a recurring truck bottleneck where I-90 westbound meets I-5. Data are individual bi-directional truck speeds from a typical week (January 2009).

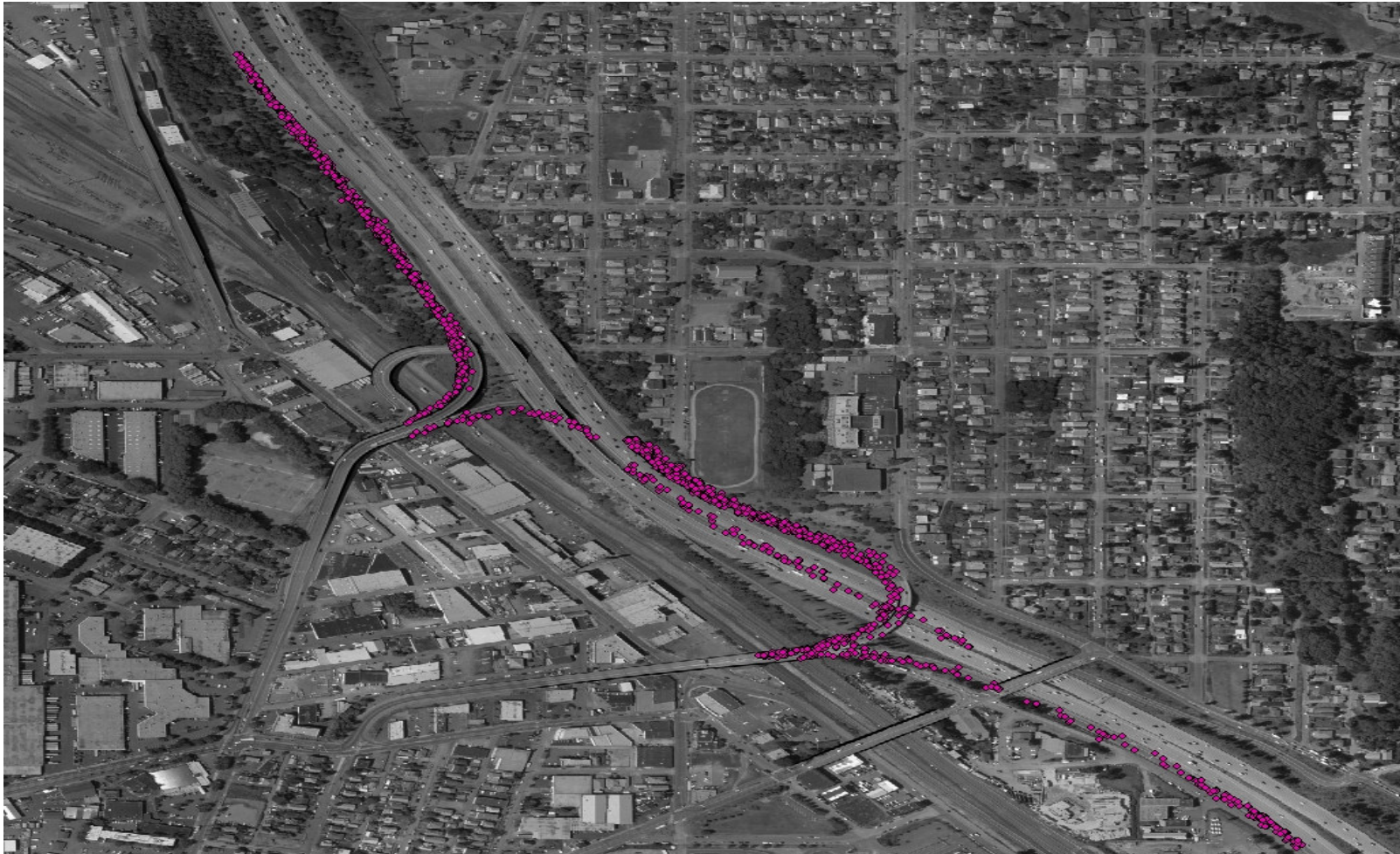
III. The Truck Performance Project data will enable WSDOT to analyze the I-90 truck bottleneck



Speeds are estimated yearly average, based on data collected from September 2008 to September 2009.

III. The truck speed data supports analysis of truck bottlenecks at ramps and interchanges

I-5/Corson Avenue in September 2009



There are benefits and costs of monitoring truck performance on the state network.

Advantages of GPS truck data:

- There is no other way to accurately track truck speeds on the state and local road network.
- The state can monitor the performance that matters to trucking companies and shippers: delay, stops, and speeds on specific routes.
- Data is available from commercial vendors now, and quality will improve as technology advances and more trucking companies install GPS units.

Costs and limitations of using GPS truck data:

- This is a new service. Tracking truck performance requires ongoing resources to obtain and analyze GPS data and manage the project.
- At this time, vendors aren't capturing enough GPS reads on many local roads across the state to analyze their performance.

What are the next steps?

The Truck Performance Measure research team will complete the final report by spring 2011. The research has demonstrated that monitoring truck performance is:

- Necessary for new freight funding. The information may be required to justify federal freight program funding and used to support state freight investment decisions.
- Becoming more cost effective. WSDOT and TransNow are able to continue this project through February 2011 with no additional fund requests. TransNow estimates that expanding the project to cover the entire state will cost \$180,000 per year in the future, much less than the pilot cost.
- Critical to meet air quality standards. The U.S. Environmental Protection Agency will finalize a new model for emissions analysis in 2009. The model requires volumes and speeds by vehicle type to estimate emissions. Truck data is an essential input for air quality studies.

Questions?

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